Immune Memory Against Hepatitis B Persists in 4–5 Year Olds Previously Vaccinated with Hexavalent DTPa-HBV-IPV/Hib Vaccine in Routine Clinical Practice

V. Schuster[1], B. Gartner[2], O. Van Der Meeren[3], N. De Clercq[3,*], J.M. Jacquet[3], M. Steiner[4]

[1] *Universitätskinderpoliklinik, Leipzig, Germany*
[2] *GlaxoSmithKline GmbH, Munchen, Germany*
[3] *GlaxoSmithKline Biologicals, Rixensart, Belgium*
[4] *Medical Practice, Bad Saulgau, Germany*

Background: Protection against hepatitis B disease after immunization is considered as relying on both the persistence of protective serum antibodies and the ability of the immune system to mount an anamnestic response when rechallenged with the hepatitis B virus (HBV). Hexavalent DTPa-HBV-IPV/Hib vaccine (*Infanrix hexa*™) has been found to induce comparable seroprotective antibody levels against hepatitis B as monovalent hepatitis B vaccines in the short-term, and this study evaluated the long-term immune memory towards HBV in children aged 4—5 years.

Methods: Open-label study [106789] conducted in 27 centres in Germany, enrolling children aged 4—5 years previously primed and boosted in routine clinical practice with 4 doses of DTPa-HBV-IPV/Hib vaccine. All subjects received a single challenge dose of monovalent paediatric HBV vaccine (*Engerix*™-B Kinder; GSK Biologicals). Blood samples were collected before and one month after vaccination. Anti-HBs antibodies were measured using ELISA; a concentration ≥10 mIU/ml was considered seroprotective.

Results: A total of 301 subjects were vaccinated, of whom 286 were included in the ATP cohort for immunogenicity. Prior to challenge, 85.3% of subjects had anti-HBs antibodies ≥10 mIU/ml and 47.0% of subjects had concentrations ≥100 mIU/ml. One month after the challenge, the percentages of subjects increased to 98.3% and 95.8%, respectively. Anti-HBs antibody Geometric Mean Concentrations rose 100-fold from 88.7 to 8711.8 mIU/ml. The HBV challenge vaccine was well tolerated and no serious adverse events were reported.

Conclusion: Primary and booster vaccination with *Infanrix hexa*™ in routine clinical practice induces long-term seroprotection against hepatitis B and immune memory as demonstrated by the strong response to HBV challenge.

doi:10.1016/j.ijid.2008.05.194

15.039

Co-Administration of a Human Rotavirus Vaccine Rix4414 with DTPw-HBv Vaccines: Immunogenicity and Reactogenicity in Healthy Infants

V.K. Tatochenko[1], V.V. Romanenko[2], S.M. Kharit[3], I. Smolenov[4], I. LeFevre[4], N. De Clercq[4,*], J.M. Jacquet[4]

[1] *Scientific Center of Children Health, Moscow, Russia*
[2] *Children's City Hopsital, Ekaterinburg, Russia*
[3] *Research Institute of Children Infection Disease, Sankt-Peterburg, Russia*
[4] *GlaxoSmithKline Biologicals, Rixensart, Belgium*

Background: The introduction of oral live attenuated human rotavirus vaccine RIX4414 (*Rotarix*™, GSK Biodiphtheria-tetanus-whole cell pertussis (DTPw) vaccine combinations. This multicentre trial (104021) assessed the impact of co-administering RIX4414 vaccine on the immune response to primary vaccination with two formulations of DTPw-hepatitis B [DTPw-HBV (*Zilbrix*™ or *Tritanrix*™); GSK Biologicals].

Methods: Healthy infants 11—17 weeks of age were randomised to receive one of the following vaccination regimens at 3, 4.5 and 6 months of age: RIX4414 vaccine (3 and 4.5 months) + DTPw-HBV (*Zilbrix*™ or *Tritanrix*™); RIX4414 placebo (3 and 4.5 months) + DTPw-HBV (*Zilbrix*™ or *Tritanrix*™); separate DTPw (*Triple Antigen*™; CSL) + HBV (*Engerix*™-B; GSK Biologicals) vaccines. Oral polio vaccine was administered concomitantly to all children. Blood samples for immunogenicity analysis were obtained before vaccination and one month after the third dose of DTPw vaccine (Month 7). Solicited adverse events were recorded on days 0—7 post-vaccination, unsolicited adverse events on days 0—30 and serious adverse events throughout the entire study.

Results: 308 subjects were enrolled and vaccinated, of whom 302 and 254 were included in the ATP cohorts for safety and immunogenicity, respectively. One month after the third primary vaccination dose, (2.5 months after the second RIX4414 dose), anti-rotavirus seroconversion rates70.0—74.5% were seen in the 2 groups receiving RIX4414. In the groups receiving DTPw-HBV combinations, seroprotection against diphtheria, tetanus, hepatitis B, poliovirus types 1, 2 and 3 and vaccine response to *B. pertussis* was seen in 100%, 100%, 100%, ≥97.3% and ≥96.2% of subjects, respectively. No significant increase in the incidence of solicited adverse events was observed with co-administration of the RIX4414 vaccine. All vaccine regimens showed similar reactogenicity and safety profile.

Conclusion: Co-administration of neither RIX4414 (*Rotarix*™) nor DTPw-HBV vaccines impacted on the immune response of the other vaccine.

doi:10.1016/j.ijid.2008.05.195

15.040

Single Oral Dose of Azithromycin *versus* Five Days of Oral Erythromycin or No Antibiotic in the Treatment of *Campylobacter* enterocolitis in Children: A Prospective Randomized Assessor-Blind Study

D. Vukelic[1,*], V. Trkulja[2], M. Salkovic-Petrisic[2]

[1] *University Hospital for Infectious Diseases, Zagreb, Croatia*
[2] *Department of Pharmacology, Zagreb University School of Medicine, Zagreb, Croatia*

Objective: To evaluate the efficacy of a single oral azithromycin dose *vs.* standard oral erythromycin regimen or no antibiotic for *Campylobacter* enterocolits in children ≤12 years of age.

Methods: Randomized parallel group assessor-blind trial. Patients ($N = 120$) were enrolled ≤48 hours since disease onset to receive erythromycin 50 mg/kg/day over 5 days, single-dose azithromycin 20 mg/kg or 30 mg/kg, or no

antibiotic (no treatment-control) (1:1:1:1). Antibiotics were commenced 8—10 hours after enrollment. Patients were assessed in 24-hour intervals over 6 days.

Results: In the intent-to-treat analysis, *Campylobacter* eradication was achieved in 20/30 controls and in all antibiotic-treated patients. Incidence of clinical cure during the observed period was 15/30 in the control, 14/30 in the erythromycin, 20/30 in the lower and 25/30 in the higher azithromycin dose group. With adjustment for age, sex, baseline symptom score and disease duration before enrollment, only azithromycin 30 mg/kg was superior to no treatment: incidence ratio (IR) = 1.76 (95% CI 1.11—2.87). It was also superior to erythromycin (IR = 1.80, 97.5% CI 1.13—2.84). Regarding time to clinical cure, only azithromycin 30 mg/kg was superior to no treatment: adjusted hazard ratio (HR = 3.80, 95% CI 1.97—7.32). It was also superior to erythromycin (HR = 4.17, 97.5% CI 1.91—9.09). All antibiotics improved ($p < 0.05$) symptom score reduction over time, most prominently azithromycin 30 mg/kg, which was also superior to erythromycin ($p < 0.001$). All treatments were well tolerated.

Conclusion: Single azithromycin 30 mg/kg administration early after disease onset effectively eradicates the pathogen and accelerates clinical cure in childhood *Campylobacter* enterocolitis. It is clinically superior to an early commenced 5-day erythromycin regimen.

doi:10.1016/j.ijid.2008.05.196

15.041

Chronic Osteomyelitis Mimicking Metastatic Disease

J.H. Grichener*, I. Suffern Quirno, N. Mascardi

Children Hospital of Buenos Aires, Buenos Aires, Argentina

Lower back pain is an extremely rare chief complaint in the pediatric population, being more common in adolescents. This finding is usually associated with acute injuries; including infections and malignancy as presumptive diagnoses.

Objective: To consider differential diagnosis in a pediatric patient with lower back pain. To describe a case of osteomyelitis of infrequent location referred to a pediatric tertiary care center in Buenos Aires, Argentina.

Case: 16 yo previously healthy Paraguayan male who presents with progressive lower back pain associated with intermittent fever. He was initially admitted in an outside facility in Paraguay, where initial diagnostic studies (including CBC, UA and CXR) did not reveal abnormal results. He was treated with a third-generation cephalosporin for five days, with resolution of the fever. Back pain was unresponsive to antimicrobial therapy and to NSAID. After being 14 days afebrile patient developed fever again which prompted his referral to our institution.

On admission he presented leukocytosis, increased acute phase reactants and Spine X ray and Spine CT showing a lesion at the L5 level, with decreased height of the vertebral body as well as decreased intervertebral space in between L4 and L5. Chest CT was positive for disseminated nodular lesions predominantly located in the right lung.

Due to concern for oncologic etiology (Ewing's Sarcoma) or infection, further workup was performed, including:

- -Bone scan (scintigraphy): increased uptake in the right femoral diaphysis, L4 and L5 vertebral bodies
- -Spine MRI: lesion evident in L5-S1without compromise of the vertebral disc
- -Bone biopsy (vertebral body).

Pathology report was consistent with Chronic Osteomyelitis with super-imposed acute process without evidence of malignancy. Bone tissue culture and blood cultures were positive for methicillin-resistant *Staphylococcus aureus* (MRSA).

Patient received 4 weeks of IV antibiotics with clinical, biochemical and radiologic improvement.

Conclusion: Specific lesions account for 85% of children with lower back pain, of which 20% are infectious or oncologic in etiology.

doi:10.1016/j.ijid.2008.05.197

15.042

Identifying the Bacterial Causes of Childhood Empyema in Australia

R. Strachan[1,*], L. Gilbert[2], A. Martin[3], S. Ranganathan[4], H. Selvadurai[5], C. Wainwright[6], A. Jaffe[1]

[1] *Sydney Children's Hospital, Randwick, Australia*
[2] *Institute of Clinical Pathology and Medical Research, Westmead Hospital, Westmead, Australia*
[3] *Princess Margaret Hospital for Children, Perth, Australia*
[4] *Royal Children's Hospital, Melbourne, Australia*
[5] *Children's Hospital at Westmead, Westmead, Australia*
[6] *Royal Children's Hospital, Brisbane, Australia*

Background: Evidence suggests that the world-wide incidence of childhood empyema is increasing. The reason is unknown but may be related to Pneumococcal vaccination and the increase in prevelance of *Streptococcus pneumoniae* Serotype 1. This study aims to determine the causative bacterial pathogens and management in childhood empyema across Australia.

Methods: Children with empyema presenting to 13 hospitals across Australia have been enrolled since March 2007 as part of a 2 year prospective study. Clinical data and blood and pleural fluid culture results were recorded.

Results: Thirty eight subjects have been recruited, age 4.64 (0.42 to 13) years (median (range)), 21 female. Of 35 blood cultures 8(22.9%) were positive: *Streptococcus pneumoniae*, $n = 3$(37.5%); *Streptococcus pyogenes*, $n = 1$ (12.5%); *Haemophilus influenzae*, $n = 1$ (12.5%); *Staphylococcus aureus*, $n = 1$ (12.5%); *Neisseria meningitides (type C)*, $n = 1$ (12.5%); and coagulase negative Staphylococcus, $n = 1$ (12.5%). Thirty two pleural fluid samples were cultured of which 15 (46.9%)were culture positive: *Streptococcus pyogenes*, $n = 6$ (40.0%); *Staphylococcus aureus*, $n = 3$ (20.0%), *Streptococcus pneumoniae* $n = 2$ (13.3%); MRSA, $n = 2$ (13.3%); Pseudomonas species, $n = 1$ (7.1%); *Bacillus cereus*, $n = 1$ (6.7%). 1 subject had *Streptococcus pyogenes* in both blood and pleural fluid; 1 subject had *Streptococcus pneumoniae* in blood and *Bacillus cereus* in pleural fluid; 1 subject had *Staphylococcus aureus* in